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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,872	02/10/2004	Bao Ha	Serie 5545	3882

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Linda K. Russell
Intellectual Property Department
Air Liquide
2700 Post Oak Boulevard, Suite 1800
Houston, TX 77056

EXAMINER	
MCNELIS, KATHLEEN A	

ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/776,872	HA ET AL.	
	Examiner	Art Unit	
	Kathleen A. McNelis	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claims Status

Claims 13-17 remain for examination wherein claim 13 is amended.

Acknowledgement of RCE

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CRF 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.115, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 27, 2005 has been entered.

Terminal Disclaimer

The terminal disclaimer filed on October 26, 2005 disclaiming the terminal portion of any patent granted on this application, which would extend beyond the expiration date of U.S. Patent 6,568,207 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Status of Previous Rejections

The previous rejection of claims 13-17 under 35 USC § 103 is withdrawn based on applicants' amendment to the claims.

The previous rejection of claims 13-17 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-13 of Brugerolle et al., U.S. Patent No. 6,568,207 is withdrawn based on applicants' filing of a terminal disclaimer on October 26, 2005.

The previous rejection of claims 13 to 17 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of Ha et al. U.S. Patent No. 6,692,549 is maintained.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grenier (U.S. Pat. No. 5,244,489) in view of Rathbone (5,268,016).

With respect to claim 13, Grenier discloses a process for enriching the oxygen content of air to a blast furnace (abstract), wherein the system includes a blast furnace (1), air preheating apparatus (2), blowers (3) and an air separation unit (4) as shown on Figure 1 (col. 2 lines 14-22).

The blowers (3) deliver compressed air to preheating (2) via conduit (5), thence to the blast furnace (1) via conduit (6) (col. 2 lines 24-27). A portion of feed air is removed in branching conduit (7) and routed to the air separation unit (4). The oxygen enriched stream (9) can be fed either into compressed air stream (5) via conduit (10) or into preheated air stream (6) via conduit ((11); col. 2 lines 28-38). Grenier discloses 2

blowers (3) mounted in parallel (col. 2 lines 17-27) and operated simultaneously (col. 3 lines 50-61).

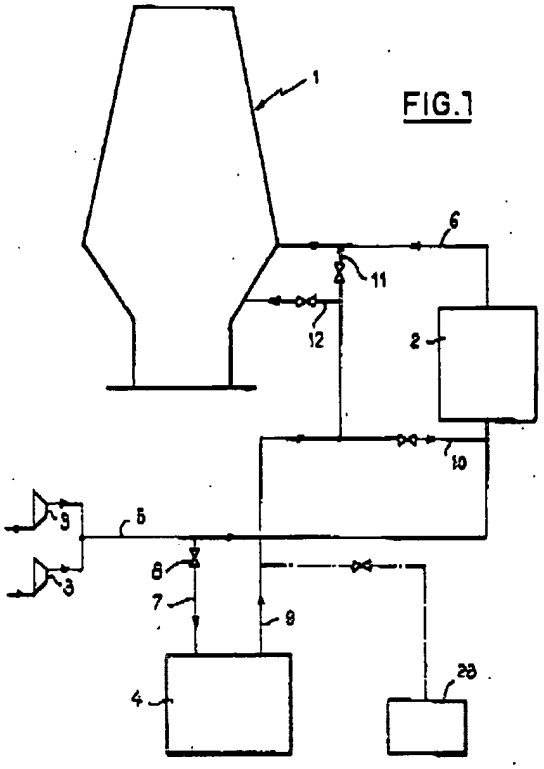

FIG.1

A "first portion" of feed air would be provided by one of the blowers and would mix with the additional compressed air from the second blower in conduit 5, resulting in a combined feed air stream, from with an oxygen rich product (9) is removed from the air separation unit (4) and mixed with the remaining portion of the blast furnace feed air (into either of conduits 5 or 6). Both air streams are compressed as in instant claim 17.

Grenier does not disclose removing a second gas from the air separation unit and heating the second gas and expanding the second gas to recover energy.

In a method for air separation combined with a blast furnace, Rathbone (5,268,019) discloses that it is known to be advantageous to recover work from nitrogen

produced in cryogenic air separation plants (col. 1, lines 9-28). Rathbone discloses a method for removing a minor portion of the compressed air stream for separation, separating this minor stream into oxygen and nitrogen rich streams, and expanding the nitrogen stream to recover external work (col. 8, line 44-col. 9, line 4). Rathbone discloses several methods for heating and expanding the nitrogen:

- The nitrogen may be heated by non-contact heat exchange with a fluid, and expanded without mixing with another fluid (col. 9 lines 24-30), as in instant claim 13.
- The heat exchange fluid used to heat the nitrogen may be combustion gases (col. 9, lines 24-34), as in instant claim 14.
- The nitrogen may be mixed with combustion gases and expanded therewith (col. 9, lines 11-23), as in instant claim 15.
- A portion of the nitrogen stream may be heated by non-contact exchange with the exhaust gases from a turbine prior to being expanded. The off-gases used for heat exchange with the nitrogen being generated by combustion of the off gas from a blast furnace in a combustion chamber (col. 5, lines 26-52), as in instant claim 16.

It would have been obvious to one of ordinary skill in the art at the time the invention was made, to recover work by expanding the nitrogen rich stream generated in Grenier, by any of the means disclosed in Rathbone for heating and expanding the nitrogen to recover work, since Rathbone teaches that it is known to be advantageous to recover work from nitrogen produced in an air separation plant (col 1., lines 11-27).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent

and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 13 to 17 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-12 of Ha et al. U.S. Patent No. 6,692,549.

Although the conflicting claims are not identical, they are not patentably distinct from each other for the reasons given in the March 11, 2005 office action and as maintained in the August 22, 2005 office action.

With regard to the amended language in claim 13 "...wherein said first portion of feed air is mixed with additional compressed air resulting in a combined air stream," Ha et al. '549 claim 1 discloses the removing and oxygen enrichment of a portion of the blast furnace feed air, claim 2 discloses mixing the oxygen rich stream with feed air prior to being fed into the blast furnace and claim 12 further comprises mixing additional air with the first portion.

Further, applicant did not comment on the maintained rejection in the August 22, 2005 office action or on the notice by examiner that the terminal disclaimer had not been received.

Response to Arguments

Applicant's arguments with respect to the 35 USC § 103 rejections of claims 13-17 have been considered but are moot in view of the new ground(s) of rejection.

Applicant has failed to comment on the rejection of claims 13-17 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of Ha et al. U.S. Patent No. 6,692,549.

Further, in applicants' remarks dated June 13, 2005, applicants stated that a Terminal Disclaimer was filed to overcome this rejection. The USPTO does not have this Terminal Disclaimer as indicated by examiner in the office action dated August 22, 2005.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kathleen A. McNelis whose telephone number is 571-272-3554. The examiner can normally be reached on M-F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700